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CASES OF OPIUM POISONING.

[Read before the Boston Society for Medical Observation, Jan. 18th, 1864, and communicated for the Boston Medical and Surgical Journal.]

By John G. Blake, M.D., Boston.

At 3 o'clock in the afternoon of June 20th, I was called in haste to see Mr. W. P., in a small court leading from Harrison Avenue, distant from my house about two minutes' walk. I found him lying on a bed, apparently asleep, and in a few moments received, in reply to inquiries, the following history.

His age was thirty years. One week previously he had come home from Fortress Monroe, on a short furlough, where he had been serving as hospital steward to one of our Massachusetts Regiments, and his leave of absence having expired, he was to have returned the evening of the day on which I was requested to see him. In consequence of some family trouble, he had several times declared his intention of taking poison or killing himself by some means. No notice was taken of these threats by his brothers and sisters or wife. At 1 o'clock he left the house, returned in five minutes, and went to his room. He did not appear at dinner, but his absence excited no comment in the family. At 2, his brother went to his room, but found it locked, and supposing him asleep did not wish to disturb him, and waited for about an hour, when, not hearing him moving, he became alarmed, forced open the door, and found him on the bed asleep. He sent immediately for a physician, and I saw him a few moments afterwards.

He was lying on his back, the head thrown over a pillow, and both arms extended. The face was pale, with a slight bluish tinge, cool, and moist with cold perspiration; the lips purplish, slightly parted, and partially covered with frothy mucus; breathing slow and loud, but hardly stertorous; pupils very much contracted; pulse 65 or 70, full and regular. The hands were cold and the nails quite blue. On a table by the bedside was an ounce vial, labelled "laudanum." I sent a messenger to the druggist from whom it had been purchased, asking the quantity and the time at which he sold it. The hour was

1 o'clock, and the quantity an ounce. The druggist stated that the man represented himself as an apothecary, well acquainted with the properties and dose of the preparation, and under these circumstances he had no hesitation in selling it to him. The tincture was the officinal U. S. Pharmacopœia preparation, strength about twenty-five drops equivalent to one grain of solid opium. He had evidently taken the whole of the contents of the vial. The odor of laudanum was perceptible in the breath.

I commenced treatment by shaking him pretty roughly for a few moments, with the effect of rousing him sufficiently to speak or mutter a few words and attempt to shake off my hands or push me away, and then relapsing again into his state of stupor. An emetic composed of ten grains of sulphate of zinc and one drachm of pulverized ipecac was given, mixed with a teacupful of warm water. Six or eight men, including two police officers, were summoned, and the room having been cleared of furniture and the bedstead, in the course of a few minutes he was walking around, supported on each side by one of the men. In about ten minutes he made one or two attempts to vomit, but only a little mucus was thrown up. Efforts to promote emesis by tickling the fauces with a feather not succeeding, a second dose of ipecac was given, mixed with a large quantity of warm water. This was followed by tolerably free vomiting, emptying the stomach completely. A strong infusion of coffee was now ordered to be prepared, and in the mean time the walking briskly around the room was continued without intermission, the men relieving each other as they became fatigued. The day was intensely hot, and with all the doors and windows open, and every fan in motion, our efforts to procure a draft of cool air were not attended with much success. The man weighed fully one hundred and seventy five pounds, and with the thermometer at 85 in the shade, it was no boy's play to keep him in motion, unable as he was to assist himself. Ammonia was applied to the nostrils and small doses in brandy given internally. The coffee being now ready, it was given in teacupfuls frequently repeated, till he had taken a pint and a half in the course of an hour. There was as yet no improvement; if he was allowed to rest for a few moments he relapsed into unconsciousness, and we had to pull his hair, pinch and slap him, to rouse him the least. At 4½, P.M., I sent for my friend Dr. Damon, and Mr. Webber, a member of the medical class, and with their assistance we succeeded in finding two or three fresh men. We carried our patient out into the court, and kept him in motion in the open air. I had previously tried to get a galvanic battery, but was unable to obtain one. About six o'clock, after three hours pretty active treatment, he began to brighten up a little; could keep on his feet and walk without falling forward at every second or third step, and would at times try to disengage himself from the hands of my assistants. Encouraged by this we continued, but our assistants were nearly exhausted, and no new ones coming to replace them, it was determined to send him to the hospital. An open waggon and mattrass were soon ready. He was seated on it, and with Mr. Webber on one side and a policeman on the other, to prevent his returning to a state of stupor, he soon reached the hospital. I acquainted the medical superintendent with the history and the means used to restore him, stating that of the usual remedies employed electricity and belladonna were the only ones untried.

He immediately applied the poles of a battery, and by repeated shocks succeeded in rousing him, so that before I left the hospital he was walking about the grounds almost without assistance. Later in the evening, the stupor returning, one drachm of Thayer's fluid extract of belladonna was given, without producing any marked change in the pupil. It was repeated in the course of half an hour, with the effect of causing moderate dilatation. Stimulants were given in moderate quantity, and although he seemed to have passed the most serious part, towards morning he began to sink gradually, and at 10 o'clock on the following day died.

There was no autopsy.

Mary L. M., aged 20, a strong, healthy-looking girl, swallowed, in the evening of July 27th, six drachms of laudanum. I was called to see her at half past eight o'clock, an hour and a half after she had taken the poison. When I entered her room, she was sitting in a rocking chair by a window, her head leaning forward on her breast, hands clasped together resting on her lap, and apparently sleeping. She was breathing slowly and with some difficulty, almost snoring; the skin cold and moist; countenance dark and lips almost purple; pupils contracted and insensible to light; pulse 60, full and regular; hands and feet cold. General appearance that of a well-marked case of opium poisoning. Shaking and loud talking in her ear would rouse her partially, but almost immediately after she would sink into unconsciousness.

A bottle containing a few drops of tincture of opium, with the name of a Washington Street druggist on the label, was on the mantel-piece. Giving directions to the attendants to keep her moving around the room, I went to the druggist to ascertain the amount sold her and to procure remedies. On my return, I succeeded in making her swallow a strong dose of ipecac (ʒ i.) and sulphate of zinc (ten grains), and nearly half a pint of warm water. This was soon followed by free vomiting of liquid and frothy mucus, from which a faint odor of opium was perceptible. After the vomiting had ceased, a strong infusion of coffee was given in small quantities and frequently repeated. Ammonia was applied to the nostrils occasionally, friction to the extremities, and sinapisms over the stomach and chest. During the application of these she was necessarily allowed to rest, but prevented from relapsing into stupor by shaking, pulling her hair, &c. By two o'clock, the narcotic effects of the drug began to subside, and soon after three she could speak plainly, and walk with slight assistance.

I left at four, giving strict directions to the attendants not to allow her to go to sleep, and to call me if she became worse in any respect. I saw her again in four hours—at eight in the morning. She had recovered almost entirely from the narcotic effects of the drug, but complained of great prostration, severe headache and nausea. I prescribed brandy and carbonate of ammonia, and beef-tea, to be taken during the day. In the evening she was feverish, at least she described herself as feeling so, the skin was warm and perspiring, and the pulse 120; bowels had not been moved for two days. An enema was given, and repeated till it produced the desired effect, and a drachm of fluid extract of valerian prescribed. Next morning she was much better, had slept during the night, and felt comparatively well; told me why she had taken the laudanum, and the excuse she gave to the druggist (quite unnecessary, I believe, as it is sold without restriction by almost all). I continued to visit her for the two following days, but she did not require any particular treatment and was soon perfectly well.

The following case can hardly deserve the name of poisoning, the symptoms were so few and slight.

Mrs. M., aged 40, of intemperate habits, took, between two and three o'clock in the afternoon of the 18th of October last, nine drachms of laudanum in three doses of three drachms each, at intervals of ten minutes, the last dose at about half past two. Regretting what she had done, I was sent for, and saw her in three quarters of an hour. She told me that having had a quarrel with her husband she had become tired of life, and had purchased the laudanum by sending her little girl to three separate apothecary shops, and buying six cents worth in each to stop the "toothache," and giving me the names of the druggists. I asked if she had taken dinner; she said yes, at half past one o'clock, and was beginning to feel sleepy.

There was some contraction of the pupils and a little slowness and fulness of the pulse, but no well-marked symptoms. I gave her an active emetic of ipecac and sulphate of zinc, and made her assist its operation by putting her finger down her throat and drinking a quantity of warm water. In the course of ten minutes she had ejected her dinner, and with it the greater part of the laudanum. Her husband having arrived at this stage, I gave him directions to keep her awake for several hours, and to summon me if she became worse.

I saw her again in the evening; she felt sleepy and benumbed, had a dull, heavy look about the eyes; the pupils were moderately contracted, but sensitive to a certain extent to light. She had taken about a pint of coffee during the afternoon, but had not retained it. I ordered fifteen drops of aromatic spirits of ammonia every half hour till midnight; after that she might be allowed to sleep. Next day she was entirely recovered from its effects.

This woman had been under my care about a month before for delirium tremens, and had taken tolerably large doses of opium without their producing any narcotic effect. As it was impossible to ascertain the precise quantity of laudanum absorbed from the first dose till the emetic operated, but which must have been very considerable, I have since thought that she would have recovered from it even without treatment, as I believe it is a well-known fact that individuals accustomed to the use of alcohol are not affected to the same extent by opium and its preparations as others who are not in the habit of using alcoholic stimulants.

ESCAPE OF INTESTINES FROM A HERNIAL SAC.

[Read before the Suffolk District Medical Society, and communicated for the Boston Medical and Surgical Journal.]

By Robert White, M.D., Boston.

December 18th, I was called to visit Mrs. C., Belcher's Lane, aged 60. She complained of severe pain in the stomach, with inclination to vomit. I ordered her to drink some warm water, and prescribed one ounce of a solution of morphia, a teaspoonful to be given every fifteen minutes until relieved. After taking one dose of the morphia, she vomited about two quarts of a yellowish-colored fluid. The pain increasing, she attempted to get out of bed, and then, for the first time, felt something unusual hanging down on her thighs, which alarmed her so that she sent for me again. I immediately visited her, and on examination found about eight inches of the ileum protruding through an opening in a very large hernia in the linea alba, below the umbilicus. It was very much congested, very dark colored, and, I found, mortified; and the priest having arrived, I desired him to perform his office, as I had no hopes of her recovery. In the mean time I went for my pocket-case, and fortunately had a hernia bistoury. I returned, and as soon as possible made a thorough examination, and found that about four inches more of intestine had escaped through the opening since my first examination, about fifteen minutes before. It was of a natural color, the line of demarcation being well marked between this and the congested portion. I tried carefully to return it, but could not. Feculent matter was distinctly felt within the intestine, and I feared that too much manipulation might rupture it. I immediately enlarged the opening with the bistoury, making an incision upwards about three fourths of an inch in extent, through which the intestine was easily returned. After this, the pain immediately ceased. I then sewed up the wound, using five stitches, taking care not to include the peritoneum, which was distinctly seen lining the inner surface of the parietes, and applied long strips of adhesive plaster and a bandage. Afterwards I dressed it every second day with adhesive plaster. It healed up rapidly; in two weeks it had perfectly cicatrized, and in three weeks she resumed her usual household work. Her bowels were not moved for a week after the operation, and then her dejections were scybalous, which is their normal condition.

The history of the case, so far as I could ascertain, is the following. About eight years ago she had a large abscess immediately below the umbilicus, which burst, discharging a very large quantity of blood and pus. After some months it healed, leaving a large cicatrix in the linea alba, which now measures three inches in length. After this, the hernia formed, and grew to an immense size, so as to hang down on her thighs when she walked about or worked. The hernia had become sacculated; that is, a number of smaller herniæ projected from the large one. Probably one half of the intestinal canal is contained in the hernia. The former cavity of the peritoneum is so contracted as to be incapable of receiving back the contents of the hernial sac. In one of these sacculi, where the integuments had become very thin, the present rupture occurred.

About four years ago a small opening formed in the same sacculus, through which a piece of omentum protruded. By rest for two or three weeks she got well. The omentum rotted away, a piece of it remaining and plugging up the hole like a cork, as she described it. Afterwards the hole disappeared, and the integuments had become of a uniform appearance.

ON THE PREPARATION OF FLESH MEAT AS HUMAN FOOD.

READ BEFORE THE DUBLIN ROYAL SOCIETY BY E. D. MAPOTHER, M.D., &c.

THE importance of all subjects concerning public health and the economy of human food must be my excuse for troubling the meeting with some points in relation to the preparation of flesh meat. I have long regarded the present mode of slaughtering animals as most wasteful and injurious; for it removes all the blood, most of the lymph and chyle, and a considerable quantity of the muscle juice and of the serum which soaks the solid parts. Sheep and swine are killed by plunging a long knife from one side of the throat to the other, by which all the great vessels of the neck are divided; the heart, still beating for several minutes, most effectually pumps out all the fluids of the body. The butcher sometimes attempts to run the knife between two bones of the neck, and thus divide the spinal cord; but, as I have determined by examination afterwards, he nearly always fails in this object, and the creature struggles and suffers pain for several minutes till it dies. Sheep are not now knocked on the head, as the appearance of the carcase is thought to be spoiled by that part being crushed, bruised or stained. Oxen, however, having more power to resist their destroyer, are firmly tied to a stake, and are rendered insensible by being hit on the forehead two or three times by a pole axe; a long knife is then thrust from the neck obliquely into the chest, and the great vessels are divided as they issue from the heart; blood jets out forcibly for some minutes, and then its flow is further aided by a man standing on the chest, and thus compressing all the vessels. About sixty pounds of blood will flow from a full-sized ox, all of which is allowed to drain into the sewers leading from the slaughter-house, and becomes a nuisance in the neighborhood by the pestilential vapors it evolves in decomposing.

I had some years ago an opportunity of judging of the injurious effects of these effluvia, for there was a slaughter-house about twenty yards behind a house in Harcourt Street, in which I then resided. It has since been removed by the authorities. It may be calculated, from the data given in Morton's "Cyclopædia of Agriculture," that about 90,000 tons of blood are in this way wasted annually in England, although its value as manure has long been proved. As is well known, the Jewish nation strive to abstract the blood still more completely. The Rabbi slaughters the animal, which has been previously securely tied, by one great cut, with an extremely sharp knife, across the neck down to the bone. He previously sprinkles a little water upon the animal. The blood jets out for many feet, and the animal struggles and suffers acutely for several minutes. In examining the carcase afterwards, if the slightest adhesion is found between the lung and the chest, it is rejected. The reason of this is probably that the lung would then contain some blood, as it could not entirely collapse. In most cases animals are not fed for many hours before they are slaughtered; for experience had discovered what physiologists have lately explained, namely, that animals pour out nearly twice as much blood if fed. Calves are bled two or three times, with intervals of about twelve hours, before they are killed; and they are thereby rendered so weak that they often faint, or even die, at the second or third bleeding; when, at last, their throat is cut, scarcely any blood issues. The injury this cruel process inflicts on the flesh will be shortly alluded to. Pigs and poultry are still more barbarously treated; for, after the knife is used, they are allowed to run about.

I shall now endeavor to show the propriety of allowing the blood to remain in the animal, distributed throughout the flesh we use: and while I acknowledge that long-established custom seems to have sanctioned the present method of slaughtering, I must remark that many other popular fallacies, which are now seen by every one to be injurious, have only slowly yielded to improvements in scientific knowledge. As will be seen by the analyses of Playfair, blood and flesh are almost exactly identical in elementary composition:—

	Dry Ox Blood.	Dry Ox Flesh.
Carbon	54·35	54.12
Hydrogen	7·50	7·89
Nitrogen	15·76	15·67
Oxygen	22·39	22.32

and from this fact, Pereira, one of the most reliable writers on diet, allows that their nutritive value is equal. The amount of water each contains is also very similar, namely, 22 per cent. in blood, 20 in flesh. The more important constituents of blood are exhibited in this table:—

Water	779·20
Hemato-globulin	141·10
Albumen	69.50
Fibrin	2·20
Fat	1·60
Salts	5.93
Iron	0·57
	1000·00

Blood, then, contains about 70 parts per 1000 of albumen, the model alimentary substance which is presented to us by nature in that typical food the egg, and which, although undeniably superior to the matter which constitutes meat, is wholly drained from it by bleeding. Hemato-globulin, the albuminoid which forms the red cells, exists in the large proportion of 140 per 1000, and this is convertible by the stomach into a substance undistinguishable from that obtained from flesh.

With regard to the other nitrogenized substance, fibrin, it may be objected that it is not susceptible of solution in the weak acid mixture which gastric juice presents; but it would certainly afterwards yield to the alkaline pancreatic juice, which has lately been shown to be concerned in the digestion of some albuminoids. Its small proportion, however, 2 per 1000, renders its consideration unimportant.

It is, however, in the saline matters that meat deprived of blood suffers the most serious loss. The salts of potash abound in flesh, whereas those of soda are almost entirely absent. In blood, on the contrary, there is a large proportion of chloride of sodium, or common salt, and of phosphate of soda—materials of extraordinary value as constituents of human food. This latter salt has been shown by Liebig to fulfil an office essential to the maintenance of life, and which no other salt is capable of performing, namely, the absorption and conveyance of carbonic acid to the lungs, where by exposure to the air it is discharged. That renowned philosopher exclaims:—

"This is again one of the numberless facts which fill with inexpressible admiration the soul of the observer of natural arrangements—namely, that an alkaline phosphate exhibits towards carbonic acid the same comportment as a neutral alkaline carbonate does. Contrary to all known laws, it appears to the chemist like a miracle that two acids—a gaseous one and a fixed one, one of the weakest and one of the strongest, which of all acids differ most in composition—can form with the alkalies found in the blood compounds of the same chemical character. Phosphate of soda has an alkaline taste, and reaction like the carbonate; and its solution in presence of free carbonic acid takes up as much of that acid as the carbonate of soda does, and, like it, only more easily, gives it off, by agitation with air, *in vacuo*, or by evaporation, without losing its power of again absorbing the carbonic acid."

Iron, too, that highly useful, or indeed apparently essential constituent of our body, is drained out with the blood; the sulphates, also, which doubtless have some useful, although as yet undetermined, function in the animal economy, exist exclusively in blood. With regard to the potash salts, although they exist in greater proportion in flesh than in blood, there can be little doubt that the last flowing portions of that fluid would rob the solids of a considerable amount. They are, however, much more completely abstracted in the salting of meat, the brine, which is thrown away, containing probably as much valuable material as the tough and scarcely soluble residue. That fearful disease, scurvy, depends on this withdrawal of soluble salts in the curing of meat, as was first demonstrated by Dr. Aldridge, and announced in this room.

Now, I have no doubt that the use of meat in which the blood was retained would prevent this disease; for my former pupil Dr. David Walker, the naturalist and surgeon to Sir Leopold M'Clintock's Arctic expedition, has informed me that underdone meat, and in which some of the blood remained, was the only sure preventive or restorative. While I am mentioning the injurious effects of the ordinary method of salting meat, I may state that the "Patent Journal" for the 6th of this month announces that provisional protection has been granted to a mode of "preserving from decay human bodies and bodies of other animals; also pickling, curing, and flavoring animal bodies." I am not aware of the nature of this process, but I have grounds for believing that the injection of strong saline solutions through the arteries of the animal would accomplish the object. I take no credit whatever for this surmise; for although familiar for many years with the preservation of anatomical subjects, by a method invented by that most able anatomist, Dr. Alcock, it never occurred to me till I had heard of the application for the patent alluded to, that the plan might be used in the case of animals which are cured as food. I can see, however, the extraordinary value of such a method, by which the curing of swine could be accomplished with great rapidity, at a mere nominal cost, and without any loss, by the removal of the soluble constituents of the animal, or by the decomposition of the deeper parts of the flesh, which now so often occurs. It would also more effectually destroy the cysticerci, or the animalcules which infest measly pork, and which are capable of developing tape-worm if introduced in a living state into man's body.

Kreatin, that invigorating principle of meat, and other flavoring matters, are also doubtless abstracted from the muscle-juice by the last flowing blood.

I do not know of any principle in the blood of animals which could prove injurious if introduced into the stomach of man; for such effete matters as urea are so completely thrown off by the eliminating organs of the animal, if healthy, that the most expert analyst can scarcely discover them in that fluid. Blood being the source from which all the pabulum of the tissues is supplied, it would seem right that that of other animals should replenish that of man; for the more closely an aliment resembles the substance of the animal which it is destined to feed, the more perfect must it be considered, as the process of digestion and assimilation are then most rapid and simple. However, I would not advocate its use in the separate state; for it would form too fluid an aliment, and would be deficient in a due proportion of non-nitrogenous or heat-producing material. In many country parts of Ireland it is, however, used as human food whenever beasts are killed at home; but the butchers always cast it away. On the continent, also, the blood is invariably used, in combination with vegetable matters, as food for pigs.

Carnivorous animals also, of course, consume the blood as well as the flesh of the animals on which they prey; and in Magendie's famous experiments it was found that dogs continued to live when fed exclusively on raw meat, which retains some blood; whereas they sank if fed alone on fibre, albumen, or gelatin. I shall next try to show that the meat from which blood has been abstracted is positively injured. Flesh is of a highly acid reaction, from the lactic acid, of which it contains about 6½ per 1000, and from inosinic, and probably some other acids. In this condition it is unsuitable as human food. Milk and the egg, the two typically perfect animal foods which all-bountiful Nature has provided for all living creatures, are alkaline. To the strongly-marked acidity of bled veal its frequent unwholesomeness and indigestibility may be attributed; for Liebig has shown that its ash contains 15 per cent. of phosphoric acid over that which is required to make salts with the alkalies present. It is also composed of a less digestible form of fibre, for it is not soluble in dilute hydrochloric acid. I have found it sometimes to putrefy rapidly, and to have a sour smell. To diminish this acidity, meat requires to be kept some time before being used, or until it becomes alkaline, from incipient decomposition evolving ammonia. Now, it is very hard to determine how far this alkaline putrescence should proceed; and although the gastric juice has undoubtedly antiseptic properties, food may be introduced into the system in a very unfit state. Meat also loses in weight and substance by being kept; and I fear also that, to avoid pecuniary loss, if is often sold and dressed in a condition most injurious, or even poisonous. The blood is an alkaline fluid, and if retained in the flesh would neutralize its acidity, and thus render it fit for food much sooner. The muscles of animals stiffen a few hours after death, which is probably mainly owing to the blood becoming solid within the vessels, for it scarcely occurs in the carcase which has been bled. It is well to wait till this stiffening has disappeared, for the meat is then certainly more tender and digestible.

We eat many animals which are killed by means which leave the blood within them; for instance, hares, rabbits, pheasants, and indeed all game. Venison, too, is often killed without bleeding; and although the animal's throat is in other cases divided after it has been shot, much of its blood is retained, owing to the stoppage of the heart's action. Now, it must be allowed that the flesh of these animals is of the most wholesome and digestible nature—a property which, as well as their delicious flavor, is mainly due to the blood they retain. Fish, too, are killed without losing blood, except, perhaps, when the cruel plan of crimping is adopted. It has often been remarked that hares caught in snares, and thus strangled, are much less digestible than those shot or hunted. This I would explain by the fact that much blood is lost by being drawn into the lungs and other internal organs while the creature is being suffocated. It has been proved, however, that no method of slaughtering will entirely remove all trace of blood from animals, for the microscope or chemical analysis will still discover it. Any prohibition, therefore, against partaking of blood will be virtually a prohibition against eating flesh at all. As well might Shylock have endeavored to remove his pound of flesh without bloodshed as might the butcher try to drain absolutely all the blood of the animals he slaughters. Dr. Lankester, one of the best authorities on dietetic questions, and who is favorable to the principle I am advocating, says—"I have no hesitation in saying that the blood you take away is just as good food as the blood you leave in, and that you would do much better to leave all the blood in the animal."

As is now becoming generally known, a soup of the highest value can be made by digesting meat in cold water to which is added a few drops of hydrochloric acid. I have often witnessed its admirable restorative properties in many debilitating diseases; and they mainly depend on the fact that it contains the soluble constituents of the blood, which are most readily assimilated by persons of even the weakest digestive powers.

The equestrian people of the American pampas and prairies, as well as Europeans who are sojourning there for many months, during the hunting season, are well known to live on an exclusively animal diet. The Indians kill the animals they use as food almost always with the bow and arrow, and, as far as I can ascertain, they do not abstract their blood. Indeed, they could not have time to do so before the animals died, for they ride rapidly about through the vast herds of buffaloes. They cut the meat in long strips, which they dry in the sun; and this food, which they call "tajo," confers on them a degree of muscular health and vigor scarcely ever attained by any European race. I am also informed that our troops during the Peninsular War were accustomed to kill their meat by shooting or with the lance, and without any further artistic butchery, and thus obtained food of the finest quality. There are, on the other hand, instances of regiments being decimated by being compelled to live on the flesh of tame cattle slaughtered in the ordinary way.

As regards the modes of slaughtering which would effectually retain the blood in the carcase, I shall first notice that patented by Dr. Carson. The beast is firmly fixed on its back, and tightly bound, so as to prevent struggling as much as possible, and a small cut is made through the skin over the space between the fifth and sixth ribs; this in the sheep may be found about two inches below, and behind, the shoulder-joint, and the more easily as the skin is not there covered by wool. Through these cuts there are thrust in two sharp-pointed tubes, with openings at the sides, and to the ends of which are attached bags, containing about a quart of air, which is then forced into the cavities which lie between the lung and the walls of the chest. The air may be prevented from escaping by the side of the tube by a button, with a concave surface towards the animal, filled with grease or soft putty. The air which is pressed upon the lung exerts still farther force in collapsing the lung when the heat of the body rarefies it. I have also injected water, which, being so incompressible, prevents the expansion of the lungs. The animal almost instantaneously dies, and suffers much less pain than in the ordinary method, which I have previously described. This method so effectually compresses the lungs, heart and large vessels, that the blood and other fluids remain distributed through the body just as they were during life, whereas these cavities are empty and contracted. This can be tested by making a cut into the neck, when but a spoonful or two of blood will issue, where very many pounds would if the animal were killed in the usual way; and then, even long after death, lymph, serum, and muscle-juice would drain into the cavity of chest, as atmospheric pressure does not bear on its outer surface.

Another way, which it strikes me would be even more rapid and painless, would be the injection of a little air into the jugular vein. This, as the surgeon knows from several fatal accidents which have befallen the human subject, kills rapidly by the air mixing with the blood in the right side of the heart, and thus preventing its transmission to the lungs. Horses which are rendered useless by severe accidents are sometimes destroyed by this method. If a large volume of air be forced in by a powerful syringe, death occurs almost instantaneously, and the heart and great vessels will be found contracted. If a narrow knife were inserted between the head and the first bone of the neck, and thrust obliquely upwards, death would also supervene immediately by injury to that part of the brain which anatomists call the "lethal point." A somewhat similar method is adopted, according to Stephens's "Book of the Farm," in the abattoirs of Montmartre, Paris, and in Spain and Germany, namely, dividing the spinal cord with a chisel and hammer between the second and third bones of the neck. These two latter methods are almost entirely painless; but butchers object to them, as they prevent the creatures struggling, and thus forcing out the blood.

I have conversed with several butchers, and practical and observant men, and the principle I have advocated has met with considerable support amongst them. Nearly all allow that meat with the blood retained would be most suitable for making soup, as the color would be no objection. Many of them have expressed a prejudice against the darker color of the meat, which would be the case if the animal were strangled; but all the plans I have mentioned are entirely different, for they retain the blood in the tissues, where it remains bright and free from carbon, if the animal be kept from struggling; blood issues from muscle as bright as it enters, if that tissue be kept quiescent. Any dark color would also disappear as soon as the temperature is raised in cooking to 158°. Others have said that such meat would decompose rapidly; but the fact that hares and other game can be kept longer than most meat seems to contradict this statement, which I think is derived from the fact that blood by itself does, owing to its alkalinity, soon putrefy; but, even if it were true, such an objection has no weight; for the meat in which the blood is retained is much sooner fit for use, and in large institutions it could be consumed shortly after it was slaughtered.

There are many other topics connected with the preparation of flesh meat—as, for instance, the best modes of detecting such as is unfit for human use, from diseases or the parasites from which the animal may have suffered—and the most scientific plans of cooking. But I fear I may have already exhausted your patience. On some other occasion I may strive to interest you upon some other subject concerning public health; for although hygienic science has determined many valuable facts and laws, they have not yet been utilized by diffusion even among the educated public.

[Specimens of the meat in the raw, boiled, roasted and fried conditions were then exhibited, and were pronounced excellent by all present.]—*Journal of the Dublin Royal Society.*

ON THE BRAIN OF A BUSHWOMAN.

By John Marshall, F.R.S., Surgeon to University College Hospital.

The Bushwoman was aged, and about 5 feet high—unusual for her race.

The form of the cranium is a long narrow ovoid—less dolichocephalic, however, than the negro skull; the face is high-cheeked, and the nose very small and flattened. The frontal sinuses are absent, and the walls of the cranium are thick—so thick that its internal capacity is less than would be expected from its outward form and size, being equal to 35 oz. av. of water, or 60·64 cubic inches, which, for the height of the Bushwoman's body, is decidedly, but not very small.

The actual weight of the preserved encephalon proved to be 21·77 oz. av., which would probably represent, as the author shows, 31·5 oz. for the weight of the recent brain enclosed in its membranes. Allowance being made for the height of the body, this is less by 8·5 oz. than the average weight of the brains of European females of the same age, as estimated from the Tables of Dr. Boyd, published in the Philosophical Transactions for 1861.

The cerebrum proper probably weighed, in its recent state, 27·25 oz., the cerebellum 3·45 oz., and the pons with the medulla oblongata ·8 oz.

The ratio of the cerebrum to the cerebellum was as usual, 7·7 to 1; that of the cerebrum to the body was probably as 1 to 52, and that of the cerebellum to the body as 1 to 418, instead of the usual ratios of 1 to 41, and 1 to 328.

An examination of the general form of the cerebrum shows that it is small, but long—defective in width, and especially in height. Its outlines and surfaces are angular and flat, instead of rounded and full. The frontal region is very narrow, shallow, much excavated below, and compressed laterally near the entrance of the Sylvian fissure. The parietal region is low, but prominent laterally; the occipital region is long, but defective in height; and the temporal region is long, but narrow.

The cerebrum overlaps the cerebellum by ·5 inch, which is as great an absolute overlap as is usual in European brains, but less relatively to the length of the brain, which is very long in the Bushwoman.

The fissures, lobes, and convolutions are then described at length, and compared with those of the ordinary European brain, with those of the Hottentot Venus's brain figured by Gratiolet, and with those of the young Chimpanzee. It is impossible to give in an abstract even an outline of the facts recorded in this part of the paper.

The general result of the inquiry is to show that the fissures are rather more complex than in the brain of the Hottentot Venus, but much less so than in the European. They are rather more complex on the left than on the right side of the brain. They are widely separated from those of the Ape's brain.

The author concludes—1. That all the convolutions proper to man are present, but, as compared with the European brain, are much more simple, and less marked with secondary sulci. The greatest deficiency is in the occipital and orbital convolutions.

2. That the convolutions, taken generally, are rather more complex than those represented in Gratiolet's figure of the Hottentot Venus's

brain, which may be partly due to the obliteration of details in the latter during its long period of preservation.

3 & 4. That the resemblance between the Bushwoman's brain and the Hottentot Venus's brain is sufficient to justify the conclusion that the latter was not an idiot, or a defectively developed individual; but both brains, as compared with the European, have an infantile simplicity, characteristic partly of sex, but chiefly of race.

5. That the convolutions being more simple, can be more easily traced and compared on the two sides than usual, but still show abundant evidences of the asymmetry characteristic of man.

6. That there is a greater difference between the Bushwoman's cerebrum and the highest Ape's cerebrum than between it and the European cerebrum; but a less specific difference between it and the European than between the Chimpanzee and the Orang; and, of course, much less than between the highest and lowest Quadrumanous brains. There is, however, less difference between the Bushwoman and the highest Ape than between the latter and the lowest Quadrumanous animal.

7. The general results, the author thinks, justify the expectation that characteristic differences of degree of cerebral development may hereafter be found in the several leading races of mankind.

The author then proceeds to describe the color and relative proportions of the grey and white substance, the commissures, ventricles, and ganglionic masses.

The commissural fibres of the corpus callosum are very deficient in the Bushwoman; and the other commissures are also small. The body and anterior cornu of the lateral ventricle are also small; but the posterior cornu and its contained parts are very large.

In the cerebellum, the median parts appear to be somewhat less developed than the hemispheres. Its transverse commissural fibres are more largely developed than the same system of fibres in the European brain; the Chimpanzee standing, in this respect, still lower. The laminæ of the cerebellum are even more numerous than in the European specimen with which the Bushwoman's brain was compared. The cerebellum seems to be more perfectly developed than the cerebrum.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON: THURDSAY, FEBRUARY 11, 1864.

Passage of an Ambulance Bill.—At last the friends of a general ambulance system may congratulate themselves upon the passage of a bill securing an efficient organization for this purpose, which extends in its provisions to all our forces in the field. The pressure of public opinion has been too much for individual opposition, and this long-needed and much-desired measure is in a fair way to become the law of the land. Boston may well feel an honest pride in this result, for it is fresh in the remembrance of all that the first movement to excite the interest of the public in this benevolent project was made by the medical profession in this place; and to a Boston physician, Dr. Henry I. Bowditch, is due, more than to any other single individual, the persistent effort by which the strenuous opposition by which it was so long and successfully overborne has been completely swept away. So complete is this triumph that we see the gentleman to whom this opposition may be said to have been principally due, now standing forth as the advocate of the measure which has just passed the Senate of the United States. We do not care to dwell on this remarkable fact, but only note it as a new instance of the great prevailing power of the truth.

We regret to see in some quarters a disposition to speak disparagingly of gentlemen here, as if they had been inclined to push their own personal schemes in this matter to the exclusion of those which were recommended by the military authorities. The New York *Medical Times* some weeks since made such a statement, which it has not yet retracted, although notified by us that there was no foundation for it. Within two or three days, also, we have noticed in one of our daily papers a slur upon the "stay-at-home" gentlemen who were so zealous to introduce an ambulance system of their own, which attempt had met with a signal failure. The writer seems most anxious that the friends of the system here should get no credit whatever for their interest or their labors. Now all this is very unfair, ungenerous and untrue. As we stated before, the great effort here has been to secure *some* system which should be complete and have the binding sanction of the public law; and we have yet to meet the first man who does not cordially accept Senator Wilson's bill, based on the recent order of General Meade, as all-sufficient in its provisions. The following is the bill which has passed the Senate:—

A Bill to establish a uniform System of Ambulances in the Armies of the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the medical director, or chief medical officer, of each army corps, shall, under the control of the medical director of the army to which such army corps belongs, have the direction and supervision of all ambulances, medicine, and other wagons, horses, harness, and other fixtures appertaining thereto, and of all officers and men who may be detailed or employed to assist him in the management thereof, in the army corps in which he may be serving.

SECT. 2. And be it further enacted, That the commanding officer of each army corps shall detail officers and enlisted men for service in the ambulance corps of each army corps, upon the following basis, viz.: one captain, who shall be commandant of said ambulance corps; one first lieutenant for each division in such army corps; one second lieutenant for each brigade in such army corps; one sargeant for each regiment in such army corps; three privates for each ambulance, and one private for each wagon; and the officers and non-commissioned officers of the ambulance corps shall be mounted: Provided, That the officers, non-commissioned officers and privates so detailed for each army corps shall be examined by a board of medical officers of such army corps as to their fitness for such duty; and that such as are found to be not qualified shall be rejected, and others detailed in their stead.

SECT. 3. And be it further enacted, That there shall be allowed and furnished to each army corps two-horse ambulances, upon the following basis, viz.: three to each regiment of infantry of five hundred men or more; two to each regiment of infantry of more than two hundred and less than five hundred men; and one to each regiment of infantry of less than two hundred men; two to each regiment of cavalry of five hundred men or more; and one to each regiment of cavalry of less than five hundred men; one to each battery of artillery—to which battery of artillery it shall be permanently attached; to the headquarters of each army corps two such ambulances; and to each division train of ambulances two army wagons; and ambulances shall be allowed and furnished to divisions, brigades, and commands not attached to any army corps upon the same basis; and each ambulance shall be provided with such number of stretchers and other appliances as shall be prescribed by the Surgeon-General: Provided, That the ambulances and wagons herein mentioned shall be furnished, so far as practicable, from the ambulances and wagons now in the service.

SECT. 4. And be it further enacted, That the captain shall be the commander of all the ambulances, medicine and other wagons in the corps, under the immediate direction of the medical director, or chief medical officer, of the army corps to which the ambulance corps belongs. He shall pay special attention to the condition of the ambulances, wagons, horses, harness, and other fixtures appertaining thereto, and see that they are at all times in readiness for service; that the officers and men of the ambulance corps are properly instructed in their duties, and that their duties are performed, and that the regulations which may be prescribed by the Secretary of War, or the Surgeon-General, for the government of the ambulance corps, are strictly observed by those under his command. It shall be his duty to institute a drill in his corps, instructing his men in the most easy and expeditious manner of moving the sick and wounded, and to require in all cases that the sick and wounded shall be treated with gentleness and care, and that the ambulances and wagons are at all times provided with attendants, drivers, horses and whatever may be necessary for their efficiency; and it shall be his duty also to see that the ambulances are not used for any other purpose than that for which they are designed and ordered. It shall be the duty of the medical director, or chief medical officer, of the army corps, previous to a march, and previous to and in time of action, or whenever it may be necessary to use the ambulances, to issue the proper orders to the captain for the distribution and management of the same; for collecting the sick and wounded, and conveying them to their destination. And it shall be the duty of the captain faithfully and diligently to execute such orders; and the officers of the ambulance corps, including the medical director, shall make such reports, from time to time, as may be required by the Secretary of War, the Surgeon-General, the medical director of the army, or the commanding officer of the army corps in which they may be serving; and all reports to higher anthority than the commanding officer of the army corps shall be transmitted through the medical director of the army to which such army corps belongs.

SECT. 5. And be it further enacted, That the first lieutenant assigned to the ambulance corps for a division shall have complete control, under the captain of his corps and the medical director of the army corps, of all the ambulances, medicine, and other wagons, horses, and men in that portion of the ambulance corps. He shall be the acting assistant quartermaster for that portion of the ambulance corps, and will receipt for and be responsible for all the property belonging to it, and be held responsible for any deficiency in anything appertaining thereto. He will have a travelling cavalry forge, a blacksmith and a saddler, who will be under his orders to enable him to keep his train in order. He shall have authority to draw supplies from the depot quartermaster, upon requisitions approved by the captain of his corps, the medical director, and the commander of the army corps to which he is attached. It shall be his duty to exercise a constant supervision over his train in every particular, and keep it at all times ready for service.

SECT. 6. And be it further enacted, That the second lieutenant shall have command of the portion of the ambulance corps for a brigade, and shall be under the immediate orders of the first lieutenant, and he shall exercise a careful supervision over the sergeants and privates assigned to the portion of the ambulance corps for his brigade; and it shall be the duty of the sergeants to conduct the drills and inspections of the ambulances under his orders of their respective regiments.

SECT. 7. And be it further enacted, That the ambulances in the armies of the United States shall be used only for the transportation of the sick and wounded, and, in urgent cases only, for medical supplies, and all persons shall be prohibited from using them, or requiring them to be used, for any other purpose. It shall be the duty of the officers of the ambulance corps to report to the commander of the army corps any violation of the provisions of this section, or any attempt to violate the same. And any officer who shall use an ambulance, or require it to be used, for any other purpose than as provided in this section, shall, for the first offence, be publicly reprimanded by the commander of the army corps in which he may be serving, and for the second offence shall be dismissed from the service.

SECT. 8. And be it further enacted, That no person except the proper medical officers, or the officers, non-commissioned officers and privates of the ambulance corps, or such persons as may be specially assigned, by competent military authority, to duty with the ambulance corps for the occasion, shall be permitted to take or accompany sick or wounded men to the rear, either on the march or upon the field of battle.

SECT. 9. And be it further enacted, That the officers, non-commissioned officers and privates of the ambulance corps, shall be designated by such uniform or in such manner as the Secretary of War shall deem proper; Provided, That officers and men may be relieved from service in said corps, and others detailed to the same, subject to the examination provided in the second section of this act, in the discretion of the commanders of the armies in which they may be serving.

SECT. 10. And be it further enacted, That it shall be the duty of the commander of the army corps to transmit to the Adjutant-General the names and rank of all officers and enlisted men detailed for service in the ambulance corps of such army corps, stating the organizations from which they may have been so detailed; and if such officers and men belong to volunteer organizations, the Adjutant General shall thereupon notify the Governors of the several States in which such organizations were raised of their detail for such service; and it shall be the duty of the commander of the army corps to report to the Adjutant-General from time to time the conduct and behavior of the officers and enlisted men of the ambulance corps, and the Adjutant-General shall forward copies of such reports, so far as they relate to officers and enlisted men of volunteer organizations, to the Governors of the States in which such organizations were raised.

SECT. 11. And be it further enacted, That nothing in this act shall be construed to diminish or impair the rightful authority of the commanders of armies, army corps, or separate detachments, over the medical and other officers, and the non-commissioned officers and privates of their respective commands.

SECT. 12. And be it further enacted, That horse and mule litters may be adopted or authorized by the Secretary of War in lieu of ambulances when judged necessary, under such rules and regulations as may be prescribed by the medical director of each army.

DR. S. L. SPRAGUE, we hear, was some weeks since reinstated in his office of Examiner of Pension Claimants, from the duties of which he had been suspended several months before. It would seem, therefore, that in this instance, as in the case of Dr. Graves, the Commissioner must have been influenced in his action by false representations. Now that these gentlemen are restored to the full exercise of their powers as examiners, we trust that their examinations will be respected at Washington. In repeated instances it has happened, as we learn through the pension agents here, soldiers, after having been pronounced upon by these gentlemen and Dr. Shaw, have been required by orders from Washington to undergo a second examination by another examiner, even in cases of the clearest and most undoubted character, thus subjecting the applicant to unnecessary vexation, delay and expense. Either these gentlemen are fit for the office they hold and are therefore worthy of confidence, or they are not. If the former is true, it is little better than an insult to repudiate their reports; if the latter, the sooner their places are filled by reliable men the better. The office of examiner is intended for the benefit of our suffering soldiers, not for the pecuniary advantage of any official. We are waiting with much interest for the action of the Commissioner in the case of Dr. Shaw, whose removal we believe to have been as unwarrantable as that of either of the gentlemen who have been reinstated.

RECTO-VESICAL LITHOTOMY IN THE MALE.—The Paris correspondent of the London *Lancet* writes as follows:—"You published last year a paper by Mr James Lane 'On Lithotomy in the Female Bladder,' in favor of the vesico-vaginal incision. Dr. Marion Sims, of New York, now practising in Paris, considers that the facility and invariable success with which a cut in the vesico-vaginal septum may now be closed suggest this as 'the only justifiable operation for stone in the female bladder.' He performed this operation first in 1850. It has since been repeatedly performed in America by Dr. Emmett, of the Women's Hospital of New York, and by Dr. Bennett, of Connecticut. The simplicity, safety, and unfailing success of the operation are spoken of in warm terms.

"The application of this to the parallel method of *recto-vesical lithotomy in the male*, is a subject worthy of careful consideration. Recto-vesical lithotomy *in the adult* is a proceeding which was used long before the introduction of metallic sutures, and was followed with modifications by Mr. Lloyd, of St. Bartholomew's. Without these sutures it was liable to a serious objection—the occasional persistence of recto-vesical fistula. The silver-wire sutures, however, promise to obviate this inconvenience. Dr. Sims has mentioned to me a case in which Dr. Bauer, of New York, operated by this plan in 1859, Dr. Sims putting in the sutures. He says:—'The patient was placed on the left side, and my speculum was introduced into the rectum, exposing the anterior wall of the rectum, just as it would the vagina in the female. A sound was passed into the bladder. The Doctor entered the blade of a bistoury in the triangular space bounded by the prostate, the vesiculæ seminales, and the peritoneal reduplication. He passed the finger through this opening, felt the stone, and removed it with the forceps without the least trouble. The operation was done as quickly and as easily as it would have been in the female through the vaginal septum. After the removal of the stone, Dr. Bauer kindly asked me to close the wound with silver sutures, which I did, introducing some five or six wires with the same facility as in the vagina. There was no leakage of urine. The patient recovered without the least trouble of any sort. The wires were removed on the eighth day, and on the ninth day the patient rode in a carriage with Dr. Bauer a distance of four or five miles, to call on and report himself to our distinguished countryman, Dr. Mott. The facility and safety of executing recto-vaginal lithotomy (except in children, for anatomical reasons), and the success of closing at once the cut by the introduction of metallic sutures, ought to make this the operation in the male.' "

The following are the formulæ for the solutions of the protoxide of iron manufactured by Gardner & Carrick, and advertised in this Journal:—Liq. Ferri Protoxidi dulc.—Solutionis ferri protoxidi, iʒ.; syrupis simplicis, ℥i.; tinct. aurantii cort., gtt. ii.; tinct. limon. cort., gtt. iij. Liq. ferri protoxidi amar.—Liq. ferri protoxidi dulc., ℥iij.; tinct. quassiæ, ʒij.

Prof. R. C. Stiles, M.D., has resigned his position in the Army, and will resume his duties in the Medical Department of the University of Vermont this session.

Surgeon Josiah Curtis, U.S.V., has been relieved from duty in the Department of the Susquehanna, and ordered to report in person without delay to Assistant Surgeon-General Wood, at Louisville, Ky., "for duty in the field."

Surgeon E. B. Dalton, U.S.V., has returned from leave of absence, and resumed his duties as Surgeon-in-charge, Balfour Hospital, Portsmouth, Va.

VITAL STATISTICS OF BOSTON.

For the Week ending Saturday, February 6th, 1864.

DEATHS.

	Males.	*Females.*	*Total*
Deaths during the week - - - - - - -	46	50	96
Ave. mortality of corresponding weeks for ten years, 1853—1863,	40.6	35.9	76.5
Average corrected to increased population - - - - -	00	00	84.09
Death of persons above 90 - - - - - - -	0	0	0

Mortality from Prevailing Diseases.

Phthisis.	Croup.	Scar. Fev.	Pneumon.	Variola.	Dysentery.	Typ. Fever.	Diphtheria.
17	3	10	7	0	0	1	1

Notice.—The 48th part of Braithwaite's Retrospect was mailed from this office on Tuesday, Feb. 9th, to all those members of the Massachusetts Medical Society whose vouchers of the payment of their assessments have been received.

The Title-page and Index to Vol. LXIX. will be sent to subscribers in our next issue.

Books and Pamphlets Received.—Lectures on Orthopædic Surgery, delivered at the Brooklyn Medical and Surgical Institute. By Louis Bauer, M.D., M.R.C.S., Eng.—The Nervous and Vascular Connection between Mother and Fœtus in Utero. By John O'Reilly, M.D., F.R.C.S.I.—An Answer to the Question "Why does the Sanitary Commission need so much Money?"—Charges and Specifications, with copy of Orders, and Defence of Accused, read before a Court Martial convened in the city of New York, December 10th, 1863.—Reports of the Directors and Superintendent of the "Washingtonian Home," located at 887 Washington Street, Boston, for the year 1863.

Died,—At Wrentham, Jan. 22d, Dr. Jason H. Archer, late of Fall River, aged 69.—At New York, Feb. 6th, Dr. Abel Wilder, of Blackstone, Mass.

Deaths in Boston for the week ending Saturday noon, Feb. 6th, 96. Males, 46—Females, 50.—Apoplexy, 2—inflammation of the bowels, 1—congestion of the brain, 4—inflammation of the brain, 4—bronchitis, 2—burns, 1—cancer, 2—chicken pox, 1—consumption, 17—convulsions, 5—croup, 3—diarrhœa, 1—diphtheria, 1—dropsy, 1—dropsy of the brain, 1—erysipelas, 2—scarlet fever, 10—typhoid fever, 1—hæmorrhage, 1—disease of the heart, 7—infantile disease, 2—intemperance, 1—inflammation of the lungs, 7—marasmus, 1—old age, 3—paralysis, 2—puerperal disease, 1—premature birth, 2—disease of the stomach, 2—ulcers, 1—unknown, 7.

Under 5 years of age, 39—between 5 and 20 years, 10—between 20 and 40 years, 13—between 40 and 60 years, 17—above 60 years, 17. Born in the United States, 64—Ireland, 22—other places, 10.